



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Peter M. GULVIN et al.

Group Art Unit: 2813

Application No.: 09/986,107

Examiner: D. Hogans

Filed: November 7, 2001

Docket No.: 109180

For: MEMBRANE STRUCTURES FOR MICRO-DEVICES, MICRO-DEVICES
INCLUDING SAME AND METHODS FOR MAKING SAME

RESPONSE TO RESTRICTION AND ELECTION OF SPECIES REQUIREMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the October 21, 2003 Restriction and Election of Species Requirement, Applicants provisionally elect Group I, directed to a method, and Species II. Claims 18-22 and 24-32 are readable on the elected Species.

It is respectfully submitted that the subject matter of at least claims 33-36, corresponding to Group II, Species II, should be examined with the elected Species. The Office Action fails to set forth a proper basis for restriction between the claims of Group I, Species II and the claims of Group II, Species II.

The Office Action has not established that the product recited in claims 33-36 can be performed by another and materially different process than that recited in claims 18-32, or that the process recited in claims 18-32 can be used to make another and materially different product than that recited in claims 33-36. The Office Action appears to imply that the steps of forming a first layer of sacrificial material and subjecting the first layer of sacrificial

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material to a release etch, recited in claim 18, are not required to form the product recited in claim 33. Applicants respectfully disagree.

It is respectfully submitted that a first micromachined layer that forms a membrane with a second micromachined layer directly adjacent thereto cannot be fabricated without utilizing a sacrificial layer between the first micromachined layer and the second micromachined layer. The sacrificial layer must be present to separate the first micromachined layer and the second micromachined layer. Upon removal of the sacrificial layer, a space is left between the first micromachined layer and the second micromachined layer so that the first micromachined layer can function as a membrane. Forming a first micromachined layer and a second micromachined layer directly adjacent thereto without the use of a sacrificial layer would place the first micromachined layer and the second micromachined layer in contact with each other, such that the first micromachined layer cannot function as a membrane.

Thus, the process stated in the Office Action is not a materially different process because the steps of forming a first layer of sacrificial material and subjecting the first layer of sacrificial material to a release etch, recited in claim 18, are required to form the product recited in claim 33. In other words, the process stated in the Office Action cannot be used to form the product recited in claim 33 without these steps.

Therefore, the restriction requirement applied to claims 18-36 is improper and should be withdrawn.

Furthermore, it is respectfully submitted that the first basis for restriction between Group I and Group II stated in the Office Action is incorrect. The Office Action asserts that a materially different process consisting of introducing point defects, dislocations or gross defects into the upper and lower portions of the layer may be used to make the micro-

device/membrane for a micro-device recited in the claims. Applicants again respectfully disagree.

As previously argued, it is respectfully submitted that the process suggested in the Office Action is not a method known to those skilled in the art, especially not in the manufacture of a membrane of a micro-device. Although the allegation of a different process need not be documented, the process should in fact exist rather than be left to speculation or conjecture. Applicants are unaware of any process that introduces point defects, dislocations or gross defects into different portions of a layer to control the strength gradients of the different portions, especially not in the art of micro-fabrication. The Office Action provides no further explanation or evidence to support its assertion of the existence of such a process.

The only additional reasoning provided is unhelpful. The Office Action asserts that first and second strength gradients could be created by exposing the upper and lower portions to etchant for different durations of time. However, this would not achieve the product recited in claims 16-17. In fact, this assertion is a statement of a problem to be solved by this invention. Creating first and second strength gradients by exposing the upper and lower portions to etchant for different durations of time would result in different strength gradients for the upper and lower portions, contrary to claim 16.

As such, the Office Action has not properly established that the product recited in claims 16-17 can be performed by another and materially different process than that recited in claims 1-15, or that the process recited in claims 1-15 can be used to make another and materially different product than that recited in claims 16-17. Thus, the restriction requirement applied to claims 1-17 is improper and should be withdrawn.

It is also respectfully submitted that the subject matter of all claims 1-36 is sufficiently related that a thorough search for the subject matter of any one Group of claims and species would encompass a search for the subject matter of the remaining claims and species. All of

the pending claims relate to membranes for micro-devices and fabrication thereof. Thus, it is respectfully submitted that the search and examination of the entire application could be made without serious burden. See MPEP §803 in which it is stated that "if the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions" (emphasis added). It is respectfully submitted that this policy should apply in the present application in order to avoid unnecessary delay and expense to Applicants and duplicative examination by the Patent Office.

Thus, withdrawal of the Restriction and Election of Species Requirement is respectfully requested.

Respectfully submitted,



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Date: November 20, 2003

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